

# Plantar fasciopathy in runners – assessment and differential diagnosis

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## Clinical presentation

Plantar fasciopathy presents as pain around the inferior heel, often at the medial attachment of the plantar fascia. Patients often report startup pain with their first few steps in the morning, after prolonged rest and initially or ongoing when walking or running. The onset is usually gradual and may be related to changes in activity levels.

## Differential Diagnosis

### **Fat pad**

Pain is located underneath the calcaneus, around the fat pad instead of the insertion of the plantar fascia. May coexist with plantar fasciopathy as the fat pad atrophies with increasing age.

### **Bone stress**

Presentation of bone stress injuries is variable but generally patients report night pain. Patients will have lingering background pain, less 1<sup>st</sup> step pain and worsen with increased loading. In the end stages there may be evidence of swelling. Calcaneal bone stress presents as diffuse pain around the heel whereas navicular bone stress is close in proximity to the medial insertion of the plantar fascia, and may mimic the presentation of plantar fasciopathy. On assessment pain is reproduced with palpation of the calcaneus or the navicular.

## **Nerve entrapment or S1 radiculopathy**

Burning, sharp or shooting pain is often present, radiating more distally than plantar fasciopathy. Patients may also report typical neural symptoms such as numbness, tingling or loss of sensation. Pain may be worse at night, however unlike plantar fasciopathy, the first steps in the morning may not be significantly worse than other times. Pain often decreases with increased loading such as walking. Up to 15-20% of heel pain may be attributed to nerve involvement.

## **Spondyloarthopathy**

Bilateral plantar fasciopathy may be a sign of a systemic inflammatory condition. Questioning of the presence of other symptoms such as night pain, early morning stiffness in other areas, joint pain and swelling, iritis, digestive or skin problems may further raise suspicion. If a patient presents with bilateral symptoms and has other features of a systemic inflammatory condition, then further investigation by a rheumatologist may be appropriate.

## **Subjective Assessment**

Subjective information that will guide diagnosis:

- Pain location
- Presence of early morning stiffness
- Altered sensation
- Presence of night pain
- Loading history
- Past medical history – previous bone stress injuries, general health, history of bone related disease

## Objective Assessment

- Observe gait and a gross screen of lower limb posture in standing
- Ankle range of movement
- Lunge test and straight leg lunge test
- Great toe extension in weight bearing
- Isometric ankle strength
- Resisted inversion in plantar flexion
- Calf capacity
- Balance
- Single leg dip control
- Palpation – plantar fascia insertion, calcaneum and navicular, medial ankle, fat pad
- Great toe extension combined with palpation of plantar fascia insertion
- Resisted toe flexion to assess flexor hallucis longus
- Straight leg raise
- Straight leg raise combined with dorsiflexion and eversion of the ankle
- Tinnel sign

## When to assess running?

Running assessment should be carried out when the patients pain becomes more stable. Rathleff et al. (2015) suggests that the patient should be able to walk 10km and be pain free for 4 weeks before reintroducing running. The reintroduction of running is dependent on the patient and might be governed by an important event coming up. The risks and benefits of reintroducing running should be considered and the decision should be made with the patient.

## Links associated with this episode:

[Rathleff et al. 2014. High-load strength training improves outcome in patients with plantar fasciitis: A randomized controlled trial with 12-month follow-up.](#)

[Hossain and Makwana. 2011. "Not plantar fasciitis": the differential diagnosis and management of heel pain syndrome.](#)